

***Escherichia coli*, Strain H414-36/89**

Catalog No. NR-97

(Derived from ATCC® 51434™)

For research use only. Not for human use.

Contributor:

Alison D. O'Brien, Ph.D., Chairperson, Department of Microbiology and Immunology, Uniformed Services University of the Health Sciences, Bethesda, Maryland

Product Description:

Bacteria Classification: *Enterobacteriaceae, Escherichia*

Agent: *Escherichia coli (E. coli)*

Strain: H414-36/89

Serotype: O91:H21

Original Source:¹ Patient with hemorrhagic colitis

E. coli is a gram-negative, rod-shaped bacterium which occurs singly or in pairs. It is a major facultative inhabitant of the large intestine.

The enterohemorrhagic *E. coli* (EHEC) strain H414-36/89 was isolated from a patient with hemorrhagic colitis in Germany.¹ *E. coli* H414-36/89 and many other EHEC strains encode potent toxins, similar to those of *Shigella dysenteriae*, which can cause severe intestinal, kidney and central nervous system disease. The large plasmid of *E. coli* H414-36/89 carries one copy of the gene for Shiga-like toxin type II (SLT-II) and two copies of the gene for an SLT-II-variant-type toxin.^{2,3} *E. coli* H414-36/89 has been shown to be highly virulent in a mouse model of infection.^{2,4}

Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in 0.5X Tryptic Soy Broth supplemented with 10% glycerol.

Packaging/Storage:

NR-97 was packaged aseptically, in screw-capped plastic cryovials. The product is provided frozen and should be stored at -60°C or colder immediately upon arrival. For long-term storage, the vapor phase of a liquid nitrogen freezer is recommended. Freeze-thaw cycles should be avoided.

Growth Conditions:

Media:

Tryptic Soy Broth or equivalent

Tryptic Soy Agar or equivalent

Incubation:

Temperature: 37°C

Atmosphere: Aerobic

Propagation:

1. Keep vial frozen until ready for use; then thaw.

2. Transfer the entire thawed aliquot into a single tube of Tryptic Soy Broth.
3. Use several drops of the suspension to inoculate a Tryptic Soy Agar slant and/or plate.
4. Incubate the slant and/or plate at 37°C for 24 hours.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through the NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH: *Escherichia coli*, Strain H414-36/89, NR-97."

Biosafety Level: 2

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. Biosafety in Microbiological and Biomedical Laboratories. 4th ed. Washington, DC: U.S. Government Printing Office, 1999. HHS Publication No. (CDC) 93-8395. This text is available online at www.cdc.gov/od/ohs/biosfty/bmb14/bmb14toc.htm.

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References:

1. Bockemuhl, J., S. Aleksic, and H. Karch. "Serological and Biochemical Properties of Shiga-Like Toxin (Verocytotoxin)-Producing Strains of *Escherichia coli*, Other than O-Group 157, from Patients in Germany." Zentralbl. Bakteriol. 276 (1992): 189–195. PubMed: 1559007.
2. Lindgren, S. W., A. R. Melton, and A. D. O'Brien. "Virulence of Enterohemorrhagic *Escherichia coli* O91:H21 Clinical Isolates in an Orally Infected Mouse Model." Infect. Immun. 61 (1993): 3832–3842. PubMed: 8359904.
3. Lindgren, S. W., J. E. Samuel, C. K. Schmitt, and A. D. O'Brien. "The Specific Activities of Shiga-Like Toxin Type II (SLT-II) and SLT-II-Related Toxins of Enterohemorrhagic *Escherichia coli* Differ When Measured by Vero Cell Cytotoxicity but Not by Mouse Lethality." Infect. Immun. 62 (1994): 623–631. PubMed: 8300218.
4. Melton-Celsa, A. R., S. C. Darnell, and A. D. O'Brien. "Activation of Shiga-Like Toxins by Mouse and Human Intestinal Mucus Correlates with Virulence of Enterohemorrhagic *Escherichia coli* O91:H21 Isolates in Orally Infected, Streptomycin-Treated Mice." Infect. Immun. 64 (1996): 1569–1576. PubMed: 8613362.

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